REMARKS

Favorable reconsideration of this application in light of the following discussion is respectfully requested.

Claims 1-28 are presently pending in this application.

In the outstanding Office Action, Claims 1, 8 and 9 were rejected under 35 U.S.C. 102(b) as being anticipated by Funderburg (U.S. Patent 4,228,373); Claims 1-5, 7-11, 16, 17, 20, 21, 23 and 25-27 were rejected under 35 U.S.C. 103(a) as being unpatentable over Amaya et al. (U.S. Patent 5,955,799) in view of Funderburg and Keller (U.S. Patent 3,584,496); Claims 6 and 15 were rejected under 35 U.S.C. 103(a) as being unpatentable over Amaya et al., and further in view of Dvorkis et al. (U.S. Patent 6,348,773); Claim 22 was rejected under 35 U.S.C. 103(a) as being unpatentable over Amaya et al., and further in view of Barkan (U.S. Patent 5,280,163). However, Claims 24 and 28 were indicated as allowed and Claims 12-14, 18 and 19 were indicated as including allowable subject matter.

First, Applicants acknowledge with appreciation the indication that Claims 24 and 28 have been allowed and that Claims 12-14, 18 and 19 include allowable subject matter. However, Claims 12-14, 18 and 19 are presently maintained in their respective dependent forms, because Applicants believe that Claim 1 includes allowable subject matter.

Before addressing the outstanding art rejections, a brief summary of Claim 1 is believed to be helpful. Claim 1 according to the present invention is directed to a controlling apparatus for controlling a linear oscillation motor having a movable element and a stator one of which comprises an electromagnet with a winding, and the controlling apparatus includes a sensor configured to detect movement of the movable element, and a controller configured to intermittently supply electric power to the winding of the electromagnet to move the movable element reciprocally and linearly, the controller being configured to begin each intermittent

supply of electric power to the winding at a timing before a dead center of the movable element based on an output of the sensor.

The outstanding Office Action asserts that Funderburg discloses a controlling apparatus as recited in Claim 1. Nevertheless, it is respectfully submitted that Funderburg does not teach "a controller configured to intermittently supply electric power to the winding of the electromagnet to move the movable element reciprocally and linearly, *the controller being configured to begin each intermittent supply of electric power to the winding at a timing before a dead center of the movable element based on an output of the sensor"* as recited in Claim 1 (emphasis added in Italic). On the other hand, Funderburg simply discloses that "[i]deally the slot 210 is so adjusted as to *activate the repelling coil 180 just prior to the time armature 120 reaches its extreme leftmost position to aid in starting the armature back toward the other end*" (emphasis added in Italic).[1] Thus, even if assuming *arguendo* that the armature 120 or drive rod 18 correspond to the movable element recited in Claim 1, activating the repelling coil 180 before the dead center of such a movable element is believed to be too soon for the purpose of aiding the start of the armature back toward the other end and possibly interfere with the armature's oscillatory movement. In other words, the repelling coil 180 should be activated just before the armature hits the repelling coil 180, but clearly not before the dead center of the armature. Therefore, Applicants respectfully submit that the structure recited in Claim 1 is believed to be clearly distinguishable from Funderburg.

Amaya et al. disclose a linear vibration motor and a method for controlling vibration thereof, but as indicated in the outstanding Office Action, Amaya et al. fail to teach "a

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[1] MPEP 2143.01 citing *In re Gordon*, 733 F.2d 900, 221 USPQ 1125 (Fed. Cir. 1984), which states that "[i]f the proposed modification would render the prior art invention being modified unsatisfactory for its intended purpose, then there is no suggestion or motivation to make the proposed modification."

controller configured to intermittently supply electric power to the winding of the electromagnet to move the movable element reciprocally and linearly, the controller being configured to begin each intermittent supply of electric power to the winding at a timing before a dead center of the movable element based on an output of the sensor" as recited in Claim 1. Thus, the structure recited in Claim 1 is clearly distinguishable from Amaya et al.

Keller discloses a magnetic actuator, but clearly fails to teach "a controller configured to intermittently supply electric power to the winding of the electromagnet to move the movable element reciprocally and linearly, the controller being configured to begin each intermittent supply of electric power to the winding at a timing before a dead center of the movable element based on an output of the sensor" as recited in Claim 1. Keller merely discloses that "the turn-on time in integrated which, it is believed, helps in controlling the inrush current so that high currents are not applied to the magnet windings before the magnetic field has built up in the magnets." The structure recited in Claim 1 is therefore clearly distinguishable from Keller.

As discussed in the previous response, Dvorkis et al. and Barkan disclose a laser scanner for controlling the optical scanning of bar codes and a drive circuit for resonant motors, respectively, but neither Dvorkis et al. nor Barkan teaches "a controller configured to intermittently supply electric power to the winding of the electromagnet to move the movable element reciprocally and linearly, the controller being configured to begin each intermittent supply of electric power to the winding at a timing before a dead center of the movable element based on an output of the sensor" as recited in Claim 1. The structure recited in Claim 1 is therefore distinguishable from both Dvorkis et al. and Barkan.

Because none of Amaya et al., Funderburg, Keller, Dvorkis et al. and Barkan discloses the controller as recited in Claim 1, even the combined teachings of these cited references are not believed to render the structure recited in Claim 1 obvious.

Likewise, Claims 23, 25, 26 and 27 are believed to include subject matter substantially similar to what is recited in Claim 1 to the extent discussed above. Thus, Claims 23, 25, 26 and 27 are also believed to be distinguishable from Amaya et al., Funderburg, Keller, Dvorkis et al. and Barkan.

For the foregoing reasons, Claims 1, 23, 25, 26 and 27 are believed to be allowable. Furthermore, since Claims 2-22 ultimately depend from Claim 1, substantially the same arguments set forth above also apply to these dependent claims. Hence, Claims 2-22 are believed to be allowable as well.

In view of the discussions presented above, Applicants respectfully submit that the present application is believed to be in condition for allowance, and an early action favorable to that effect is earnestly solicited.

Respectfully submitted,

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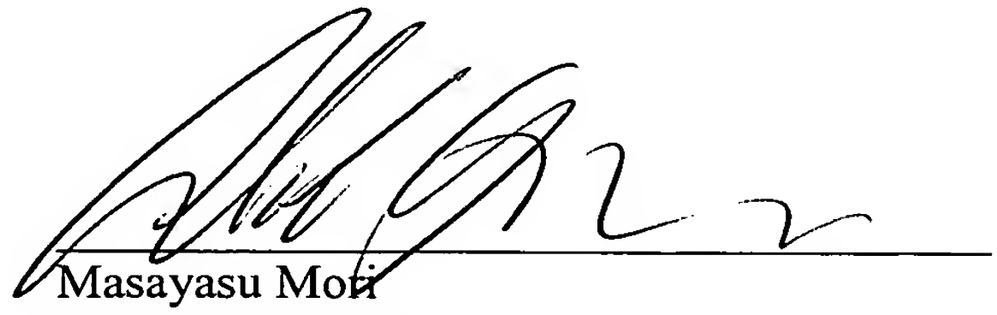

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